

CLAIMS

What is claimed is:

1. Electronic apparatus (10, 20, 26, 30, 38, 48, 66, 70, 82, 90, 96, 100, 108, 118, or 122) which comprises:

a solid-state electronic device (Q1, Q3, or Q5) that includes higher and lower dc voltage terminals;

an other electronic device (Q2, Q4, Q6, 110, 112, Q11, or Q12) that includes higher and lower dc voltage terminals;

means, comprising means (L2) for connecting said lower dc voltage terminal of one of said electronic devices to said higher dc voltage terminal of an other of said electronic devices, for connecting said electronic devices in dc series between a dc source terminal and an electrical ground;

means, comprising a capacitor (C5, C6, C9, C10, C18, or C19) that is connected between said lower dc voltage terminal of said one electronic device and said electrical ground, for rf decoupling said dc series-connected electronic devices; and

said means for rf decoupling further comprises means (86) for making an effective series resistance, between said lower dc voltage terminal of said one electronic device and said electrical ground, lower than a porcelain capacitor that resonates at an rf frequency of said one electronic device.

2. Electronic apparatus (48, 66, 70, or 82) which comprises:

a first electronic device (Q1) that includes higher and lower dc voltage terminals;

a second electronic device (Q2) that includes higher and lower dc voltage terminals;

means, comprising means (L2) for connecting said lower dc voltage terminal of one of said electronic devices to said higher dc voltage terminal of an other of said electronic devices, for connecting said electronic devices in dc series between a dc source terminal and an electrical ground;

means (V_p) for variably proportioning first and second percentages of a dc source voltage, when applied to said dc source terminal, to said first and second electronic devices, respectively; and

means, comprising a capacitor ($C5$ or $C6$) that is connected between said lower dc voltage terminal of said one electronic device and said electrical ground, for rf decoupling said dc series-connected electronic devices.

3. Electronic apparatus (48, 66, 70, or 82) which comprises:

a first electronic device ($Q1$) that includes higher and lower dc voltage terminals, and that produces a first rf output;

a second electronic device ($Q2$) that includes higher and lower dc voltage terminals, and that produces a second rf output;

means, comprising means ($L2$) for connecting said lower dc voltage terminal of one of said electronic devices to said higher dc voltage terminal of an other of said electronic devices, for connecting said electronic devices in dc series between a dc source terminal and an electrical ground;

means, comprising a variable control voltage (V_p), for variably proportioning first and second percentages of said first and second rf outputs, respectively; and

means, comprising a capacitor ($C5$ or $C6$) that is connected between said lower dc voltage terminal of said one electronic device and said electrical ground, for rf decoupling said dc series-connected electronic devices.

4. Electronic apparatus (90, 96, 100, 108, 118, or 122) which comprises:

a solid-state electronic device ($Q1$, $Q3$, or $Q5$) that includes higher and lower dc voltage terminals;

a processing electronic device (92, 110, or 112) that includes higher and lower dc voltage terminals;

means, comprising an rf choke ($L2$) that connects said lower dc voltage terminal of one of said electronic devices, to said higher dc voltage terminal of an other of said electronic devices, for connecting said electronic devices in dc series; and

means, comprising a capacitor (C5) that is connected between said lower dc voltage terminal said one electronic device and said electrical ground, for rf decoupling said dc series-connected electronic devices.

5. An electronic system (108, 118, or 122) which comprises:
a baseband processing device (110) having higher and lower dc voltage terminals;

a solid-state electronic device (Q1, Q2, or Q3), having higher and lower dc voltage terminals;

means (112, Q11, Q12) for delivering an rf signal from said baseband processor to said solid-state electronic device;

means, comprising means (L2) for connecting said lower dc voltage terminal of one of said devices to said higher dc voltage terminal of an other of said devices, for connecting said devices in dc series between a dc source terminal and an electrical ground;

means (VD1) for proportioning first and second percentages of a dc supply voltage, when applied to said dc source terminal, to respective ones of said devices; and

means, comprising a capacitor that is connected between said lower dc voltage terminal of said one electronic devices and said electrical ground, for rf decoupling said dc series-connected electronic devices.

6. Electronic apparatus (108, 118, or 122) which comprises:
a baseband processing device (110) having higher and lower dc voltage terminals (110);

a multiplier/upconverter (112) being connected in rf series to said baseband processor;

a solid-state amplifying device (Q1, Q3, or Q5) having higher and lower dc voltage terminals;

means (Q11, Q12) for connecting said solid-state amplifying device in rf series to said multiplier/upconverter;

means, comprising means (L2) for connecting said lower dc voltage terminal of said solid-state amplifying device to said higher dc voltage terminal

of said baseband processing device, for connecting said solid-state amplifying device and said baseband processing device in dc series between a dc source terminal and an electrical ground;

means (VD1) for proportioning first and second percentages of a dc supply voltage, when applied to said dc source terminal, to said solid-state amplifying device and to said baseband processing device, respectively; and

means, comprising a capacitor that is connected between said lower dc voltage terminal of said solid-state amplifying device and said electrical ground, for rf decoupling said solid-state amplifying device and said baseband processing device.

7. A method for processing rf signals which comprises:

a) connecting a solid-state electronic device and an other electronic device in dc series between a dc source voltage and an electrical ground;

b) said connecting step comprises connecting a lower dc voltage terminal of one of said electronic devices to an rf choke, and connecting said rf choke to a higher dc voltage terminal an other of said electronic devices;

c) separately processing rf signals in said first and second electronic devices;

d) proportioning first and second percentages of said dc source voltage to separate ones of said electronic devices;

e) rf decoupling said electronic devices; and

f) said decoupling step comprises providing a capacitance between said lower dc voltage terminal and said electrical ground that is lower than an effective series resistance of a porcelain capacitor that resonates at an rf frequency of said first electronic device.

8. A method for processing rf signals which comprises:

a) connecting first and second electronic devices in dc series between a dc source voltage and an electrical ground;

b) separately processing rf signals in said first and second electronic devices;

- c) variably proportioning first and second percentages of said dc source voltage to said first and second electronic devices, respectively; and
- d) rf decoupling said electronic devices.

9. A method for processing rf signals which comprises:

- a) splitting an rf signal into first and second rf signals;
- b) connecting first and second solid-state electronic devices in dc series between a dc source voltage and an electrical ground;
- c) separately amplifying said first and second rf signals in said first and second solid-state electronic devices;
- d) variably proportioning rf outputs of said separate amplifying steps;
- e) maintaining a total rf output of said first and second solid-state electronic devices substantially constant during said variably proportioning step; and
- f) rf decoupling said solid-state devices.

10. A method for processing rf signals which comprises:

- a) connecting a solid-state electronic device and a processing electronic device in dc series between a dc source terminal and an electrical ground;
- b) said dc series connecting step comprises connecting a lower dc voltage terminal of one of said electronic devices to an rf choke, and connecting a higher dc voltage terminal of an other of said electronic devices to said electrical ground;
- c) proportioning first and second percentages of a dc source voltage to respective ones of said electronic devices;
- d) rf decoupling said electronic devices; and
- e) said rf decoupling step comprises connecting a capacitor between said lower dc voltage terminal, of said one electronic device, and said electrical ground.

11. A method for processing rf signals which comprises:

- a) rf connecting a baseband processing device and a solid-state electronic device;

b) connecting said solid-state electronic device and said baseband processing device in dc series between a dc source terminal and an electrical ground;

c) said dc series connecting step comprises connecting a lower dc voltage terminal of one of said devices to a higher dc voltage terminal of another of said devices;

d) applying a dc source voltage to said dc source terminal;

e) separately proportioning first and second percentages of said dc source voltage to said devices;

f) rf decoupling said devices; and

g) said rf decoupling comprises connecting a capacitor between said lower dc voltage terminal of said one device and said electrical ground.

12. A method for processing rf signals which comprises:

a) rf connecting a baseband processing device to a multiplier/upconverter;

b) rf connecting said multiplier/upconverter to a solid-state amplifying device;

c) connecting said solid-state amplifying device and said baseband processing device in dc series with a dc source terminal and an electrical ground;

d) said dc series connecting step comprises connecting a lower dc voltage terminal of said solid-state amplifying device to an rf choke, and connecting said rf choke to a higher dc voltage terminal of said baseband processing device;

e) applying a dc source voltage to said dc source terminal;

f) proportioning first and second percentages of said dc source voltage to separate ones of said devices;

g) rf decoupling said solid-state amplifying device and said baseband processing device; and

h) said rf decoupling step comprises connecting a capacitor between said lower dc voltage terminal and said electrical ground.